Geothermal Energy Project Brief

Indian Springs School Geothermal Heating System

PURPOSE

To provide direct-use space and water heating to Indian Springs School in Big Bend, Siskiyou County, California using geothermal resources.

FUNDING AND OWNERSHIP

The school owns and operates the system, which has functioned continuously since its installation in 1986.

The California Energy Commission provided grant co-funding for construction of the geothermal system.

Awards to Indian Springs School District	$217,085
Match funds, Indian Springs School District	58,420
Total	**$275,505**

GEOTHERMAL RESOURCE AND SYSTEM DESIGN

The direct use geothermal system provides space heating and hot water for 3 classrooms, a gymnasium, the kitchen, and a 70,000 gallon swimming pool.

The single well on school district property is 860 feet deep and includes a 15 horsepower pump with a 25 horsepower motor. The geothermal fluid is 123 degrees F at the source and flows through a 450-foot insulated PVC pipe to the buildings and pool. The exceptionally clean fluids are discharged into a nearby creek.

From the initial installation of the system, there was a problem with air getting into the copper line and causing corrosion. The problem was temporarily addressed by the installation of a back-pressure valve. In 1993, the system was modified to include three heat exchangers: one for the buildings, another for the pool, and a third for the showers. The school paid for this conversion, which permanently corrected the air leakage problem.

With the heat exchangers, the flow rate is 75-80 GPM in the winter, and 20-30 GPM in the summer when only the pool is heated. The flow rate was 30-40% less before the heat exchangers were installed.

The system was expanded in 2002 to provide heat for a new greenhouse at the school. A Healthy Start Grant funded construction and system installation.

SAVINGS AND PAYBACK PERIOD

Prior to the installation of the geothermal district-use system, the school was primarily heated with electricity. As a result of the installation of the geothermal system, the school's electricity bill was reduced by about 90% from 1986 (pre-system) costs.

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For more information on this project, contact:

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